Editorial

Growing importance of valvular heart disease in the elderly

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Valvular heart disease (VHD) which defines as structural or functional abnormality of cardiac valve, is a major health problem and presence of severe VHD may be the important cause of disability, reduced quality of life, cardiac dysfunction and premature mortality from cardiovascular disease. The etiology of VHD may be congenital, acquired, or both. Acquired VHD may be rheumatic or nonrheumatic origin. Although the epidemiology of VHD has changed in the past few decades, there are still major differences in the etiology of VHD between developed and developing countries. Degenerative valve disease is regarded as a major burden of valvular disease in developed nations (1,2). In contrast, rheumatic fever and rheumatic heart disease remains the leading cause in developing countries (3-5), and previous data estimated that the global prevalence of rheumatic heart disease was 15.6–19.6 million and 79% people were from less developed countries (6). However, research into epidemiology evaluation of VHD is limited and the actual incidence of VHD is still unknown in most countries because most cases of VHD are chronic and often asymptomatic. In the States, the overall prevalence of moderate or severe valvular disease is estimated at 2.5% with no sex difference, and prevalence increased with age, from 0.7% in those aged 18–44 years to 13.3% in those aged >75 years (7). Furthermore, mitral regurgitation is the most common VHD in the USA, affecting almost 10% of the population in the 75 years and older people (7). In the Euro Heart Survey program, aortic stenosis was reported as the most frequent valve disease (43%), followed by mitral regurgitation (32%) and aortic regurgitation (13%) in the hospital based VHD (2).

The data from OxVALVE Population Cohort Study reveals the substantial burden of VHD in older people (1). This prospective cohort study investigated the epidemiological characteristics of VHD in people aged ≥65 years in Oxfordshire, United Kingdom. The participants were recruited from five primary care medical centres and underwent echocardiography and clinical assessments. For the first 2,500 enrolled participants, newly detected (predominantly mild) VHD accounted for 51%, and the most common valve lesion was aortic sclerosis (34%), followed by mitral regurgitation (22%) and aortic regurgitation (15%). The authors also reported that the total prevalence of clinically moderate or severe VHD was 11.3% after including subjects with known VHD (identified using National Health Service diagnostic codes), and they estimated that the prevalence of clinically moderate or severe VHD will double before 2050 (from 1.5 million in 2015 to 3.3 million in 2056). There are several points that merit discussion in this initial report. First, it is an important article describing epidemiological characteristics dedicated to older people in United Kingdom base on a large population and many information were consistent with the previous studies in the western countries especially for the etiology of VHD (2,7). Importantly, it clearly showed that VHD is common and the prevalence of VHD increased linearly with age due to the predominantly degenerative etiologies, which have caught our much attention for

providing appropriate management for these patients in clinical practice.

However, OxVALVE Population Cohort Study reported that aortic sclerosis was the most common abnormality and accounted for 34% population of newly identified VHD, which differs from the previous studies (2,7). Mitral regurgitation and aortic stenosis were respectively reported as the most common VHD in the USA (7) and European countries (2). This difference can be explained that aortic sclerosis was a degenerative VHD and related to aging, genetic and environmental factors. Further, aortic valve calcification usually occurs in the elderly and previous study found that patients with aortic sclerosis had a low rate of progression to clinical aortic stenosis (1.8–1.9% per year) (8). Moreover, this difference also demonstrated that there was a dramatic decline in the incidence of rheumatic heart disease and a significant increase in the incidence of degenerative etiology in developed countries.

Furthermore, the paper reported a closed association between socioeconomic class status and VHD. In particular, the prevalence of VHD in the most deprived people was higher and approximately double that in the least deprived people. We agree with the authors that the lower socioeconomic class status may have the potential contribution to the development of the valvular disease. On the other hand, poor living conditions such as malnutrition and overcrowding may be the underlying mechanism increasing the incidence of the valvular disease. One previous study has demonstrated that mortality of rheumatic heart disease was significantly higher among patients living in low-income countries (4), which indicates that there may be a close correlation between lower socioeconomic class status and morbidity or mortality in VHD. In addition, lower socioeconomic status has also been reported to be associated with lower risk-adjusted quality of life for patients undergoing cardiac surgery (9). Therefore, poorly social and economic status should also be considered as the risk factor leading to VHD.

Another important finding of this large-scale study was that participants with atrial fibrillation had much higher prevalence of VHD than those in sinus rhythm (newly diagnosed VHD 67.9% *vs.* 32.1%; clinically moderate or severe VHD 21.1% *vs.* 5.7%). Actually, there is a strong association between atrial fibrillation and valvular disease, and patients with combined atrial fibrillation and valve disease are very common in clinical practice. Previous studies have demonstrated that the prevalence of rheumatic VHD in patients with atrial fibrillation ranged from 21% in South Africa (10) to 66.3% in Ethiopia (11). People who have atrial fibrillation and valvular disease are generally older and have more comorbidities, thus attention must be paid not only to the anticoagulation and intervention, but also to their overall treatment.

The present report from the OxVALVE Population Cohort Study gave a lot of new information regarding VHD in elderly patients; nonetheless certain areas need further clarification. It is clear that over half of the studied population had VHD, however the clinical outcome in these patients, in particular to patients with only mild degree of valvular disease, compared to those without VHD is uncertain. In addition, the progression of the severity of VHD will need further evaluation in order to define the optimal timing of repeating echocardiography to assess for the progression of valvular status. Because of the emergence of various transcatheter-based intervention, a growing population of elderly patients will be eligible for these corrective procedures and therefore the aforementioned issues need to be addressed. Finally, the current data is only limited to developed countries and information from developing countries will also require further evaluation.

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

References

1. d'Arcy JL, Coffey S, Loudon MA, et al. Large-scale community echocardiographic screening reveals a major burden of undiagnosed valvular heart disease in older people: the OxVALVE Population Cohort Study. Eur Heart J 2016. [Epub ahead of print].
2. Iung B, Baron G, Butchart EG, et al. A prospective survey of patients with valvular heart disease in Europe: The Euro Heart Survey on Valvular Heart Disease. Eur Heart J 2003;24:1231-43.
3. Liu FZ, Xue YM, Liao HT, et al. Five-year epidemiological survey of valvular heart disease: changes in morbidity, etiological spectrum and management in a cardiovascular center of Southern China. J Thorac Dis 2014;6:1724-30.
4. Zühlke L, Karthikeyan G, Engel ME, et al. Clinical

Outcomes in 3343 Children and Adults With Rheumatic Heart Disease From 14 Low- and Middle-Income Countries: Two-Year Follow-Up of the Global Rheumatic Heart Disease Registry (the REMEDY Study). Circulation 2016;134:1456-66.
5. Sliwa K, Carrington M, Mayosi BM, et al. Incidence and characteristics of newly diagnosed rheumatic heart disease in urban African adults: insights from the heart of Soweto study. Eur Heart J 2010;31:719-27.
6. Carapetis JR, Steer AC, Mulholland EK, et al. The global burden of group A streptococcal diseases. Lancet Infect Dis 2005;5:685-94.
7. Nkomo VT, Gardin JM, Skelton TN, et al. Burden of valvular heart diseases: a population-based study. Lancet 2006;368:1005-11.
8. Coffey S, Cox B, Williams MJ. The prevalence, incidence, progression, and risks of aortic valve sclerosis: a systematic review and meta-analysis. J Am Coll Cardiol 2014;63:2852-61.
9. Koch CG, Li L, Shishehbor M, et al. Socioeconomic status and comorbidity as predictors of preoperative quality of life in cardiac surgery. J Thorac Cardiovasc Surg 2008;136:665-72, 672.e1.
10. Sliwa K, Carrington MJ, Klug E, et al. Predisposing factors and incidence of newly diagnosed atrial fibrillation in an urban African community: insights from the Heart of Soweto Study. Heart 2010;96:1878-82.
11. Maru M. Atrial fibrillation and embolic complications. East Afr Med J 1997;74:3-5.

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